BYKOV, M. V., ROSENSHTEYN, L. D., GOTLIB, Y. Y., VOLKENSHTEYN, M. V., BAYZHENOV, N.M.

"The photoelastic effect and the free rotation of linear polyamides," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Karpov Inst.

B-3,084,395

SPIVAK, G. V.; SAPARIN, G. V.; MASSARANI, B.; BYKOV, M. V.

"Der Kontrast des Bildes des p-n Uberganges in dem Rastelektronenmikroskop."

report submitted to 3rd European Regional Conf, Electron Microscopy, Prague, 26 Aug-3 Sep 64.

BYKOV, N., polkovnik.

Use of television for military purposes. Voen.vest.36 no.12:68-72 D '56. (MLRA 10:2)

(Military television)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307910017-3"

SOV/25-59-5-35/56

AUTHOR: Bykov, N.

TITLE: The Victory on Virgin Soil

PERIODICAL: Nauka i zhizn', 1959, No. 5, p 56-59 (USSR)

ABSTRACT: The author refers to the deficiency in the grain production of the USSR during the years immediately following WW2. In 1953, production of grain was still only 5 billion puds as against the 10 billion required by the population. From 1954 on, the prairies of Western Siberia and Kazakhstan were brought under cultivation, mainly of wheat and corn. A total of 350,000 young people moved into this area, producing 3-4 centners per hectar under the guidance of many research stations and supervisors such as I. Pudskiy and F. Morgun. There are 6 photographs.

Card 1/1

BYKOV, N. (Moskva)

[illegible]

Victory in virgin lands. Nauka i zhyttia 9 no.5:8-10 My '59. (MIRA 12:9)
(Siberia--Agriculture) (Kazakhstan--Agriculture)

BYKOV, N.

Planning and building rural settlements. Zhil.stroi. no.1: 2-5 Ja '60. (MIRA 13:5)

1. Zamestitel' predsedatelya Krasnodarskogo krayispolkoma. (City planning)

BYKOV, N.

The decisions of the July Plenum should be a basis for sea transport
Mor.flot 15 no.9:1-4 S'55. (MIRA 8:11)

1. Zamestitel' Ministra morskogo flota
(Merchant marine)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307910017-3"

BYKOV, N.

Make high quality repairs on ocean-going vessels in the prescribed time. Blok.agit.vod.transp. no.20:1-9 O '55. (MLRA 9:1)

1.Zamestitel' ministra morskogo flota SSSR.
(Ships--Maintenance and repairs)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307910017-3"

BYKOV, N.

[redacted]

Ways of improving the operations of ship repairing enterprises. Mor.flot.16 no.6:1-5 Je '56. (MIRA 9:9)

1.Zamestitel' ministra morskogo flota.
(Ships--Maintenance and repair)

STEPANOV, A.; BYKOV, N.

Improving the methods and increasing the efficiency of petroleum prospecting. Geol. nefti i gaza 4 no. 12:50-53 D '60. (MIRA 13:12)

(Prospecting)

BYKOV, N. (Vitebsk)

Attachment for testing kinescopes. Radio no.12:27 D '64.
(MIRA 18:3)

BYKOV, N.A.; MINTS, A.A.

Collaboration of track machinery stations and the division. Put' i put'khoz. 8 no.8:28-29 '64. (MIRA 17:9)

1. Nachal'nik Ternopol'skoy distantsii L'vovskoy dorogi (for Bykov).
2. Nachal'nik putevoy mashinnoy stantsii No.126, stantsiya Ternopol', L'vovskoy dorogi (for Mints).

1. BYKOV, N.D.; FISHBERG, V.M.

2. USSR (600)

4. Electric Welding

7. Manual arc welding of reinforcement rods by the method of fusion welding, Engs. N.D. Bykov, V.M. Fishberg, Avtog.delo. 24 no. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

BYKOV, N.D.; FISHBERG, V.M.; DMITRIYEV, I.S.; SOKOLOV, Ye.V.; SHCHERBININ, A.A.

Electric arc welding of concrete reinforcements by the dip method in factories and on construction sites. Rats.i izobr.predl. v stroi. no.100:6-10 '54. (MLRA 8:10)

(Electric welding)

PRIDANTSEV, M.V.; KAZARNOVSKIY, D.S.; DANILOV, V.N.; VEKSER, N.A.;
NIKONOV, A.G.; BYKOV, N.F.

Isothermal treatment of rails. Stal' 25 no.4:358-361 Ap '65.
(MIRA 18:11)

PA 151T13

BYKOV N. G.

USSR/Engineering - Circuit Breakers Sep 49
Electric Power Lines

"Possibility of Dispensing With Reactors in Feeder Lines When VMG Breakers are Used by Consumers," N. G. Bykov, Engr, B. I. Rozenberg, Cand Tech Sci, 4 pp

"Elek Stants" No 9

In 6-10 kv plant circuits, short-circuit power is limited to 100,000-150,000 kva which corresponds with capacity of VM-16 and VM-22 breakers. VMG-133 breakers, most commonly used now, have capacity of 200,000 kva to 6 kv and 350,000 kva at 12 kv. Corresponding increase in maximum permissible short-circuit power in many cases would obviate need for reactors at substations.

151T13

[redacted]

BYKOV, N. G.

USSR/Electricity - Transmission, Power Mar 51

"The Draft of a Standard for Rated Voltages of Stationary Electric Power Systems," N. G. Bykov, A. R. Gershteyn, Engineers, Leningrad Branch of "Teploelektroproyekt"

"Elektrichestvo" No 3, pp 72-74

Gives results of research carried out by "Teploelektroproyekt" during 1949 - 1950 to det which of the 2 voltages, 15 or 20 kv, should be used in the development of the cable networks of Soviet power systems. Results of the research favor the introduction of 15 kv.

201T34

KONSTANTINOV, B.A. dotsent, kand.tekhn.nauk; AYZENBERG, B.L., dotsent, kand.tekhn.nauk; KLEBANOV, L.D., kand.tekhn.nauk; NIKOGOSOV, S.N., dotsent, kand.tekhn.nauk; BARDIN, M.I., inzh.; KOROLEV, V.A., inzh.; PRINTSEV, A.A., inzh.; SOKOLOVA, K.I., inzh.; SHULYAT'YEVA, G.N., inzh.; ROZENBERG, B.I., prof., doktor tekhn.nauk [deceased]; BYKOV, N.G., inzh.; ZEYLIGER, A.N., inzh.; ZABRODINA, A.A., tekhn.red.

[Collected information data regarding the power factor (cos φ)] Sbornik informatsionnykh materialov po koeffitsientu moshchnosti (cos φ). Pod red. B.A.Konstantinova. Moskva, Gos.energ.izd-vo, 1959. 141 p. (MIRA 12:12)

1. Leningrad. Leningradskiy inzhenerno-ekonomicheskiy institut. 2. Leningradskiy inzhenerno-ekonomicheskiy institut (for Konstantinov, Ayzenberg, Klebanov, Nikogosov). 3. Energosbyt Lenenergo (for Bardin, Korolev, Printsev, Sokolova, Shulyat'yeva). 4. Leningradskiy politekhnicheskiy institut (for Rozenberg). 5. Leningradskoye otdeleniye instituta "Teploelektroproyekt" (for Bykov, Zeyliger).
(Electric engineering)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BYKOV, N. I.

Ca

15

The influence of mulching on several physicochemical properties of the soil. N. I. Bykov and N. E. Red'kin. *Vsesoyuz. Nauch.-Issledovatel. Inst. Taback. i Makhoroch. Prom.* No. 120, 35-50(in English 50)(1935).—The moisture content and temp. were increased (the latter in the upper soil layer) by paper or straw mulch. The NO_3 increased appreciably more under the straw mulch.

J. S. Joffe

COMMON ELEMENTS

MATERIALS INDEX

COMMON VARIABLES INDEX

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AUTHOR INDEX

BYKOV, N. I.

"Permafrost and Construction on it," bk., Moscow, 1940.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307910017-3"

ZHEGALIN, I.K.; PUSTYGIN, A.A., glav. agronom; SPODENYUK, N.I.; BYKOV, N.I.; REDIN, P.N., glav. agronom; LOGVIN, N.P., Geroy Sotsialisticheskogo Truda; GUSEV, I.D.; PETROV, S.N.; VLASOV, A.N., glav. zootekhnik; SHEREMET, L.D., glav. bukhgalter; SKAKUNOV, N.V., glav. inzh.; SHUMILIN, V.S., glav. inzh.; CHERNORUBASHKIN, N.A., kombayner; DRYABO, N.Ye.; ZABNEV, V.F., redaktor; SHIROKOV, B.G.; SHEPELEV, M.A.; LEONOVA, T.S.; SAYTANIDI, L.D., tekhn. red.

[Hundred million poods of grain from Stalingrad Province] 100 millionov pudov stalingradskogo khleba. Moskva, Izd-vo M-va sel'.khoz. RSFSR, 1960. 133 p. (MIRA 14:9)

1. Pervyy sekretar' Stalingradskogo oblastnogo komiteta Kommunisticheskoy partii Sovetskogo Soyuza (for Zhegalin). 2. Oblastnoye upravleniye sel'skogo khozyaystva Stalingradskoy oblasti (for Pustygin). 3. Nekhayevskiy rayonnyy komitet Kommunisticheskoy partii Sovetskogo Soyuza (for Spodenyuk). 4. Nachal'nik Kotel'nikovskoy rayonnoy sel'skokhozyaystvennoy inspektsii, Krayniy Yugo-vostok(for Bykov). 5. Kolkhoz "Deminskiy" Novo-Annenskogo rayona, Stalingradskoy oblasti (for Redin). 6. Predsedatel' kolkhoza "Zavety Il'icha" Kalininskogo rayona (for Logvin). 7. Nachal'nik Novo-Annenskoy rayonnoy sel'skokhozyaystvennoy inspektsii (for Gusev). 8. Direktor sovkhoza imeni Frunze Serafimovichskogo rayona Stalingradskoy oblasti (for Petrov). 9. Stalingradskoye oblastnoye upravleniye sel'skogo khozyaystva (for Vlasov). 10. Sovkhoz "Dinamo" Nekhayevskogo rayona Stalingradskoy oblasti (for Sheremet).

(Continued on next card)

ZHEGALIN, I.K.—— (continued) Card 2.

11. Oblastnoye upravleniye sel'skogo khozyaystva Stalingradskoy oblasti (for Skakunov). 12. Sovkhoz "Verkhne-Buzinovskiy" Stalingradskoy oblasti (for Shumilin). 13. Otdeleniye No.6 sovkhoza "Serebryakovskiy" Mikhaylovskogo rayona Stalingradskoy oblasti (for Chernorubashkin). 14. Zven'yevoy kolkhoza imeni Lenina Zhirnovskogo rayona Stalingradskoy oblasti (for Dryabo). 15. Danilovskaya rayonnaya gazeta "Kolkhoznoye znamya" Stalingradskoy oblasti (for Zabnev). 16. Zamestitel' predsedatelya oblastnogo ispolnitel'nogo komiteta Stalingradskoy oblasti (for Shirokov).

(Volgagrad Province—Grain)

BYKOV, Nikolay Ivanovich; BORSUK, V.N., otv. red.; CHEPELKINA, L.A., red.; ALEKSEYEV, A.G., tekhn. red.

[Agronomic characteristics of soil moisture conditions in the middle Volga Valley]Agrogidrologicheskie svoistva pochv Srednego Povolzh'ia; spravochnik. Leningrad, Gidrometeoizdat, 1962. 225 p. (MIRA 15:11)

(Volga Valley—Soil moisture)

BYKOV, N.I.; YURYGINA, V.V.

Microclimatic characteristics of the southern part of the suburban zone of Kuybyshev; based on the example of the Chernovskii State Farm. Sbor. rab. Kuib. gidromet. obser. no.1:88-107 '64. (MIRA 17:12)

BYKOV, N. M.

"The Nervous Apparatus of the Aortal Reflexogenic Zone of the Human Fetus and the Newborn Child." Cand Med Sci, State Inst of Physical Culture, Leningrad, 1953. (RZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

BUKIN, Yu.V.; BYKOV, N.M.; VERESHCHAGINA, N.P.; KOBZIN, A.I.; OSHCHENKOV, A.G.; SOKOLOV, N.P.

Aleksei Alekseevich Smirnov; on his 65th birthday. Arkh. anat. gist. i embr. 40 no.2:126-127 F '61. (MIRA 14:5)
(SMIRNOV, ALEKSEI ALEKSEEVICH, 1895-)

BYKOV, N.N., inzhener.

Experimental unit for testing gas turbine models. Trudy MAI no.68:105-122 '56. (MIRA 10:1)

(Gas turbines--Testing) (Engineering models)

BYKOV, N.N.

BYKOV, N.N., inzhener.

Comparing the capacity of turbine nozzles profiled according to various laws. Trudy MAI no.82:82-95 '57. (MIRA 10:10)
(Gas turbines)

10.2000

68934
S/147/59/000/04/011/020
E022/E435

AUTHORS: Yemin, O.N. and Bykov, N.N.

TITLE: Radial Distribution of Work in the Turbine When Working Under Off-Design Conditions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1959, Nr 4, pp 95-101 (USSR)

ABSTRACT: Gas turbines of today are designed in such a way that when working at design conditions, the work performed by one kilogram of the gas is the same at all radii, ie H_{Tu} = const. In that case the difference between the average work of the turbine as a whole unit and the value of work of each elementary stage is determined by the secondary losses (see Ref 1) and is given by Eq (1) where δ_{RK} is the coefficient of the secondary losses (under design conditions $\delta_{RK} = 0.97$). Comparison of the experimental characteristics with the corresponding theoretical values (including the losses as determined by two-dimensional tests of cascades) shows (Ref 2) that under the off design conditions, the deviation of the average work of a stage from its value for an elementary stage at the mean diameter increases

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(ie δ_{RK} diminishes). This may be caused either by increased secondary losses or by redistribution of work in the radial direction. The object of this work was to investigate the effect of non-uniform radial distribution of work in the intermittent part of the turbine and to compare the average values with those at the mean radius of the cascade. In the analysis the following assumptions were made: a) over the whole range of conditions (ie under design and off-design conditions) the gas moves along cylindrical surfaces; b) the motion is axi-symmetrical; c) at the exit from the guide vanes and from the rotor cascades over the whole range of working conditions, the fluid angles are the same as the effective angles of the blades, ie $\alpha_1(r)$ and $\beta_2(r)$ are the same functions of the radius. Since the solution of the problem with an arbitrary shape of the profile is difficult, the analysis was applied only for the case when α_1 = const. The relevant equations of motion are then given by Eq (2) and (3).

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Using relations between the parameters at any arbitrary radius and those at the mean radius of the turbine and introducing the factor

$$z = \frac{G_r}{G_{r\phi_{cp}}}$$

where G_r is the total (mean) rate of flow of the gas through the stage and $G_{r\phi_{cp}}$ is the corresponding rate of flow based on the mean radius conditions, then z will be the correction factor for the case when only the mean radius parameters are known. As shown in Ref 3, if the profiles are chosen so as to preserve the uniformity of the circulation, then $z \approx 1$, but for other cases its value varies (see Ref 4). Fig 1 shows its variation (taken from Ref 4), when $\alpha_1 \approx 19°$, plotted against

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$$\frac{r_{periphery}}{r_{root}} = a \quad \text{and} \quad \chi = \frac{D_{mean}}{h}$$

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for various values of λ_{1cp} (ie λ_1 mean). It is seen from the figure that as λ_1 mean increases (α_1 being constant), the total rate of flow differs more and more from the rate of flow at the mean radius. Factor z is now used to determine the averaged rate of work of the turbine. Using Eq (3) and the Euler equation (Eq (4)) the values of C_{2a} and C_{2u} may be obtained (as shown in Ref 1), hence Eq (5) follows. Solution of this equation for β_2 is very cumbersome and difficult. However, it can be checked from the graphs in Fig 2 (obtained for two different types of turbines: 1 - turbine AL; 2 - turbine VK) that the actual relation for $\tan\beta_2$ may be approximated as being between the graphs $r \cdot \tan\beta_2$ = const and $\tan\beta_2$ = const. Since direct solution of the simultaneous system of Eq (3), (4) and (5) in their original form is rather cumbersome, Eq (3) and (4) are transformed as shown at the bottom of page 97, so that Eq (8) is obtained. Differentiating Eq (8) with respect

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to r and using Eq (7), Eq (9) is obtained. Two variants are then considered:

1) $\tan^2\beta_2 = D^* = \text{const}$ leading to Eq (10)

2) $\dfrac{\tan\beta_2}{\tan\beta_{2cp}} = \dfrac{r_{cp}}{r}$ which yields Eq (11).

Both these relations are thus the differential equations for the dependence of y on r and they show that the distribution of the rate of work (with the assumed above profile shape) depends only on λ_{1cp} and λu_{cp}. Unfortunately these equations cannot be integrated directly; they were evaluated by graphico-analytical method of Euler-Cochy in the following way. First, the magnitudes of the work at the mean radius were determined for different conditions using the method shown in Ref 5 and hence

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by Eq (8), the value of y_{cp} was obtained. Substituting the values of r_{cp} and y_{cp} in Eq (10) or (11), the slope of the tangent is obtained at that radius, which is considered as the starting point. Along this tangent two new values of r are chosen (one on each side of r_{cp}) and hence the corresponding values of y were obtained. These were used again in Eq (10) or (11) and two more values of the slope of the tangent thus were found. The process was repeated until a sufficient number of points were evaluated giving the approximate solution of the differential equations. The graphs were then used to evaluate the distribution of work as given by Eq (8); this is shown in Fig 3 for various values of λ. Circles represent the case β_2 = const and triangles refer to the case $(\tan\beta_2) \cdot r$ = const. It is seen from the graphs that the two cases give results which vary very little. If the term "the theoretical averaged

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work of a stage" is used to denote the work which multiplied by the actual rate of flow of the gas through the stage gives the work equal to the sum of the works of all the elementary stages (with the usual assumption for the profiles of α_1 = const), then it can be determined from Eq (12), by means of graphical integration, z being the correction factor for evaluating the total rate of flow of gas through a stage from that flowing at the mean diameter. The coefficient Φ which represents the ratio of the theoretical averaged work (H_{Tuocp}) and the work of the elementary stage at the mean radius (H_{Tucp}) is now introduced. It varies with the conditions under which the turbine works, as shown in Fig 4 (the figure applies to the case when $D_{cp}/h \approx 6$). These results are compared now with the experimental data obtained in Ref 2. As the conditions of work of the turbine deviate from the design conditions (eg with λ_u = const and $\lambda_1 = 0.7\ \lambda_1$ design) the shaft horse power differs by

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Radial Distribution of Work in the Turbine When Working Under Off-Design Conditions

some 9 to 10% from the power of the elementary stage at the mean radius. The effect of the redistribution of the work and of the rate of flow in the radial direction, as seen from Fig 4, accounts for some 2% for the turbine with $D_{cp}/h = 6$. The remaining 7 to 8% is the result of the radial gap and other secondary effects. The variation of the coefficient Φ will be more pronounced for turbines with longer blades. Thus the non-uniform distribution of the work and of the gas flow appears to be one of the main factors which results in the power of the whole stage being different from the power of an elementary stage at its mean radius. There are 4 figures and 5 Soviet references.

ASSOCIATION: Kafedra AD-1 Moskovskiy aviatsionnyy institut (Chair AD-1, Moscow Aviation Institute)

SUBMITTED: July 13, 1959

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30242
S/145/60/000/002/010/020
D221/D302

26.2122

AUTHORS: Bykov, N.N., Yemin. O.N., and Cherkasov, B.A., Candidates of Technical Sciences

TITLE: Selecting parameters for a partial gas turbine, and the effect of the degree of partiality on its characteristic

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 2, 1960, 98 - 110

TEXT: The drop in turbine efficiency due to shorter blades which are used for design considerations, can be improved by introducing a partial disposition of the diffusor on the periphery. This has, however, a detrimental effect as well. The authors carried out research on this matter using a model gas turbine, whose specifications are described. Partiality was modified by covering some diffusor channels, when not only the ratio was changed, but also the disposition of distributor channels. Fig. 3 indicates the variation of efficiency with ratio of partiality, when all ports were X

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together (number of pairs of diffusors, i = 1). The coefficient of efficiency is expressed as a ratio of internal work of the turbine to the adiabatic work of expansion. The similarity of conditions of gas turbine operation is given by two dimensionless parameters, $\frac{u}{C_{ag}}$ and $\frac{u}{\sqrt{T_o^*}}$, and the results obtained were replotted in relation to relative efficiency as a function of degree of partiality ε. The curves reveal that the latter has a different effect on efficiency for various u/C_{ad}, and its optimum depends on the degree of partiality (dotted line). Data of different investigators were used for evaluating the blade height effect on turbine efficiency. The available results on the effect of height in a flat stationary diffusor needs systematizing. When selecting the optimum ratio of partiality and height of blades, the authors assumed that losses due to both are independent of each other, and therefore, the total effect of these can be assessed by the total coefficient of relative efficiency given in

$$\bar{\bar{\eta}}_{T(\varepsilon,\ h)} = \bar{\eta}_T\ \bar{\eta}_{Th} = f(\varepsilon,\ h) \qquad (7)$$

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Full line curves of Fig. 6 indicate the relationship between the relative coefficient of efficiency and height of blades for various values of ε. Dotted lines show efficiency versus blade height, and correspondingly the ratio of partiality, with other parameters being constant. Analysis reveals that it is expedient in several cases to reduce the height of blades, rather than use low ratio of partiality. Similar graphs were plotted for other possible cases of effect due to blade height. Experiments demonstrated that the reaction of the partial turbine remains practically constant for a wide range of conditions. This simplifies the calculation of characteristics of these turbines. Decrease of reaction optimum is due to effects of losses in friction and ventilation which form a significant part of total losses. The above can be reduced with lower peripheral speed u. Passage to a two-segment inlet arrangement leads to fall in efficiency, compared to a single segment disposition. Axial clearance effect on this turbine was also investigated, and its increase caused a drop in efficiency. Stresses at the root of the blade in 8 open channels together are greater than in the case of 31 ports. Uniform distribution of ports is favorable for stresses at the root of the blades. Increased axial clearance in a partial turbine reduces the above stresses. The analysis reveals that it is expedient to probe into the problem of optimum ratio of partiality in respect to the height of blades. This optimum depends in the first instance on losses related to partiality and the height of blades. The author admit that the results of their investigation are not universal and need a further increase in accuracy which can be achieved by detailed research. There are 12 figures, 1 table and 6 Soviet-bloc references.

ASSOCIATION: Moskovskiy aviatsionyy institut (Moscow Aviation Institute)

SUBMITTED: December 15, 1959

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307910017-3"

20599

S/147/61/000/001/008/016
E194/E184

26.2120

AUTHOR: Bykov, N.N.

TITLE: An Investigation of Turbines With Various Laws of Blade Profiling

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1961, No. 1, pp. 74-81

TEXT: Most turbines with long blades have a law of constant circulation $c_u r = \text{const}$ but if the blades are fairly long the reaction at the roots often falls to zero or even becomes negative, and to overcome this certain authors recommend profiling according to the law $\alpha_1 = \text{const}$ or even permit some increase in α_1 at the roots. Such recommendations have neither theoretical nor experimental foundation. Turbines were investigated with flow path of cylindrical shape and with the same parameters on the mean diameter.

$D_{av} = 0.294$, $D_{av}/h = 6$, $\alpha_{1\ av} = 20°$, $\rho_{T.\ av} = 0.3$,

$\pi_{T.\ calc.} = P_0^*/P_2 \cong 2.3$, $n_{calc.} = 12\ 000$ r.p.m.

Card 1/9

20599

S/147/61/000/001/008/016
E194/E184

26.2120

AUTHOR: Bykov, N.N.

TITLE: An Investigation of Turbines With Various Laws of Blade Profiling

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1961, No. 1, pp. 74-81

TEXT: Most turbines with long blades have a law of constant circulation $c_u r$ = const but if the blades are fairly long the reaction at the roots often falls to zero or even becomes negative, and to overcome this certain authors recommend profiling according to the law α_1 = const or even permit some increase in α_1 at the roots. Such recommendations have neither theoretical nor experimental foundation. Turbines were investigated with flow path of cylindrical shape and with the same parameters on the mean diameter.

$D_{av} = 0.294$, $D_{av}/h = 6$, $\alpha_{1\ av} = 20^{\circ}$, $\rho_{T.\ av} = 0.3$,

$\pi_{T.\ calc.} = P_0^*/P_2 \cong 2.3$, $n_{calc.}$ = 12 000 r.p.m.

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S/147/61/000/001/008/016
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An Investigation of Turbines with Various Laws of Blade Profiling

The turbines were profiled according to different laws. In all the turbines the change of the angle α_1 over the radius was linear, different turbines of the family had different values of $\Delta\alpha$ by which is meant the difference between the values of the angles α_1 at the root and at the mean diameter. It is shown that for the turbine with $c_u r$ = const the flow lines lie approximately on coaxial cylindrical surfaces and flow is everywhere cylindrical. When the profiling law is changed the flow ceases to be cylindrical, particularly away from the mean diameter. However, there is little change in the acceleration of the flow and accordingly when the law of profiling is altered the reaction of individual sections and the nature of the flow over them change very little. The mean parameters of the turbine are then considered; the main factors that govern them are the distributions of elementary flows and profile losses over the radius. The distribution of elementary flows over the radius for the case of constant loss over the nozzle blade height may be determined from the following formula:

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An Investigation of Turbines With Various Laws of Blade Profiling

$$dG = A \cdot r \cdot q(\lambda_1) \cdot \sin \alpha_1 \cdot dr = A \cdot f(r) dr,$$

where

$$A = \sqrt{k\left(\frac{2}{k+1}\right)^{\frac{k+1}{k}} \frac{g}{R}} \cdot \frac{2\pi \cdot \sigma_1 \cdot P_0^*}{\sqrt{T_0^*}} = \text{const.} \quad (2)$$

Profile losses may be determined from tests on stationary blades. Fig.3 shows changes in the velocity coefficient ψ and the flow coefficient $f(r)$ over the radius of the turbines. The two solid lines correspond to $\Delta\alpha = -5^\circ$ and $c_u r$ = const; the dotted line to $\Delta\alpha = +6^\circ$; and the chain dotted line to a combination of nozzles with $c_u r$ = const and runner with $\Delta\alpha = +6^\circ$. It will be seen from the graph that the change in the law of profiling has little influence on the distribution of profile losses over the radius but causes appreciable redistribution of the elementary flows. As $\Delta\alpha$ is increased the flow increases through the less

X

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An Investigation of Turbines With Various Laws of Blade Profiling

efficient root sections and falls through the more efficient blade tip sections. However, because of the comparatively small change in the velocity coefficient ψ over the radius the turbines are of practically the same efficiency. Tests were made with flat groups of blades to compare the operations of the root sections of turbine runners profiled according to different laws. Fig.5 shows the variation of the coefficient ψ as function of the inlet angle β_1 for turbine runners with $\Delta\alpha = -5$, $c_u r$ = const., and $\Delta\alpha = +6$. As the discharge angles are about the same the curves compare the efficiency of the three bladings when the flow is turned through a given angle. Since the curves do not intersect for any value of β_1 it follows that the losses are reduced as the conditions alter from divergent flow to active and convergent flows. It appears that there are two ways of reducing the losses at the root sections of the runner blades: the first is to use more convergent flow at these sections maintaining the inlet angle β_1; the second is to increase the degree of convergence of flow in the blades whilst increasing the inlet angle β_1. This

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corresponds to altering the profiling of the turbine, to increase the angles α_1 in the root sections. Fig.6 shows experimental characteristics of four turbines plotting efficiency against u/c. The dotted curve with points shown by triangles corresponds to $\Delta\alpha = 5°$, the bold curve with black points to $c_u r$ = const., the chain dotted line with crosses to $\Delta\alpha = + 6°$, and the chain dotted line with two dots and points marked by circles to the combination of nozzle with $c_u r$ = const. and runner with $\Delta\alpha = + 6°$. It will be seen that under designed conditions the turbines are of practically the same efficiency, but as the design conditions are departed from there are greater and greater differences in turbine efficiency according to the profiling law. The characteristic for the turbine with $\Delta\alpha = - 5°$ lies above that for $\Delta\alpha = + 6°$ and below that with $c_u r$ = const. Thus, increasing $\Delta\alpha$ does not improve the operation of the root section but ultimately impairs the turbine efficiency and so should be avoided. It will be seen that the combined design has the highest efficiency. This is because in these turbines, which all have the

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same nozzle gear, the distribution of elementary flows over the radius is the same. The replacement of active blading at the runner root section, c_ur = const. by convergent flow blading with $\Delta\alpha = +6^o$ reduces the losses at the root section. The presence of negative angles of attack at the peripheral sections also somewhat improves their operation. At low speeds the positive angles of attack at the root sections of the runner of the combined turbine exceed flows obtained with c_ur = const., but as the first turbine has convergent flow blading at the runner roots the losses are less than in the active blading at the roots of the turbine with c_ur = const. Thus, while maintaining the profile of the nozzle blading according to c_ur = const., improvement in the profiling of the runner causes appreciable improvement in the turbine characteristics. The shape of the runner blades of the combined turbine is very similar to the cylindrical without twisting. This offers good prospects of using cylindrical stages not only from the standpoint of ease of manufacture but also from that of efficiency. The combined turbine with nozzles having

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$c_u r$ = const. and runner with $\Delta\alpha = +6^o$ and the turbine with $\Delta\alpha = +6^o$ have different nozzle blading but the same runner. The efficiency of the first of these is considerably higher than the second. At the designed condition the gain is about 3% and at non-designed conditions rises to about 18%. It should be borne in mind that the results given here relate to reactive single stage turbines with moderate flow speeds and relatively long blades; however, in increasing the relative length of the blades the advantages or disadvantages of various laws of profiling should be still greater.
There are 6 figures and 2 Soviet references.

ASSOCIATION: Kafedra 201, Moskovskiy aviatsionnyy institut (Department 201, Moscow Aviation Institute)

SUBMITTED: April 18, 1960

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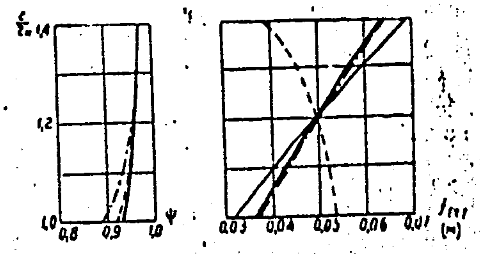
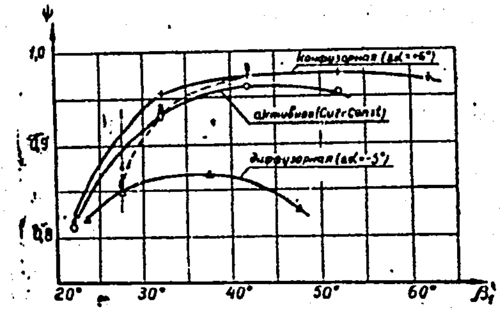
E194/E184

An Investigation of Turbines With Various Laws of Blade Profiling



Фиг. 3. Изменение коэффициента ψ и функции расхода $f(r)$ по радиусу турбин. ——— $\Delta\alpha = -5°$, ———— $c_u r = \text{const}$, — — — — $\Delta\alpha = +6°$, —·—·— комбинированная (сопловой аппарат — $c_u r = \text{const}$, рабочее колесо — $\Delta\alpha = +6°$).

Fig. 3



Фиг. 5. Зависимость скоростного коэффициента ψ от угла входа потока β_1 для плоских решеток корневых сечений рабочих колес турбин (при $\lambda_{2w} \cong \lambda_{2w\ \text{расч.}} = 0,7$).

Fig. 5

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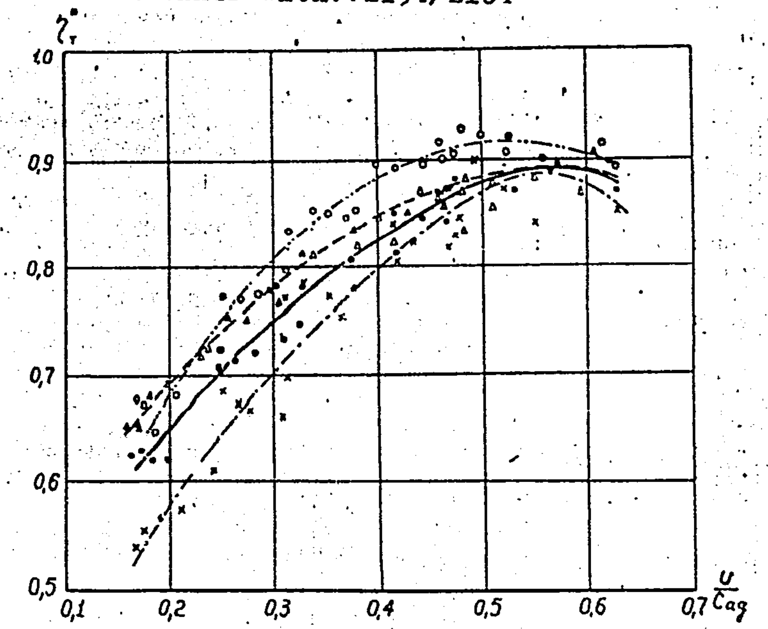
An Investigation of Turbines With..E194/E184

Fig.6



Card 9/9

L 2143-66 EWP(f)/T-2/ETC(m) WW

ACC NR: AP5026281 SOURCE CODE: UR/0229/65/000/009/0029/0032

AUTHOR: Bykov, N. N.; D'yachenko, B. K.; Yemin, O. N.

ORG: none

42
B

TITLE: The selection of a supersonic partial admission turbine

SOURCE: Sudostroyeniye, no. 9, 1965, 29-32

TOPIC TAGS: turbine, turbine design, cold gas turbine, fuel pump

ABSTRACT: Supersonic partial-admission turbines fed with high-pressure air and intended for driving small auxiliary units having outputs up to 100 kw were tested and analyzed to determine optimum design and operating conditions. The tests were carried out with a two-ring radial turbine equipped with one supersonic nozzle and designed for operation at an expansion ratio of 20, an air inlet temperature of 273K, a speed of 5000 rpm, and an output of 15 kw. The results showed that turbines operated at a small admission ratio and a large expansion ratio should be designed as a single-ring turbine with recirculation of the working fluid. Such a turbine with an admission ratio of 0.15 has the same efficiency as a two-ring turbine, which means that its efficiency is 15—25% higher than that of a conventional single-ring turbine. A single-ring turbine with recirculation is more efficient than a double-ring turbine at medium admission ratios (0.15—0.18) but less efficient at lower admission ratios. Orig. art. has: 5 figures. [PV]

Card 1/1 UDC: 621.431.74:621.438

L 2143-66

0

ACC NR: AP5026281

SUB CODE: PR/ SUBM DATE: 00 ./ ORIG REF: 006/ OTH REF: 000/ ATD PRESS: 4122

dg

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307910017-3"

BYKOV, N.N., inzh.; GURVICH, L.Yu., inzh.

The LKV-4T flax harvesting machinery. Trakt. i sel'khozmash. no.5:33-34 My '65. (MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut l'na.

L 41835-65 EWT(d)/EPA/EWT(1)/EWT(m)/EWP(f)/EPF(n)-2/EPR/T-2/EPA(bb)-2/EWA(c)
Paa-4/Ps-4 WW/JD

ACCESSION NR: AP5010968 UR/0286/65/000/007/0153/0153

AUTHOR: Bykov, N. N.; Yemin, O. N.; Zhukov, Ye. P.; Tuchinskiy, V. L.

TITLE: Gas turbine. Class 42, No. 169947

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 7, 1965, 153

TOPIC TAGS: gas turbine, aviation accessory, off design regime

ABSTRACT: This Author Certificate introduces a gas turbine (see Fig. 1 of the Enclosure) for operating aviation accessories. In order to decrease the gas flow spin and to increase the efficiency under the off-design regimes, the exit nozzle is equipped with baffles which divide the flow into a number of streams. Orig. art. has: 1 figure. [AC]

ASSOCIATION: Gosudarstvennyy komitet po aviatsionnoy tekhnike SSSR (State Committee for Aviation Technology, SSSR)

SUBMITTED: 12Feb64 ENCL: 01 SUB CODE: PR, AC
NO REF SOV: 000 OTHER: 000 ATD PRESS: 3235

Card 1/2

L 41835-65

ACCESSION NR: AP5010968

ENCLOSURE: 01

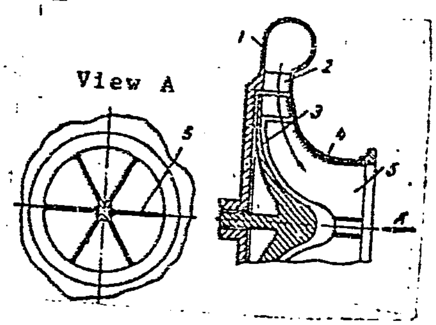


Fig. 1. Gas turbine

1 - Turbine housing; 2 - guide nozzles; 3 - rotor; 4 - exit nozzle; 5 - longitudinal baffles.

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L 45042-65 EWT(1)/EWT(m)/EWP(w)/EWG(m)/T-2/EWP(k)/EWP(v) Pf-4 JW/EM

ACCESSION NR: AP5012087 UR/0147/65/000/002/0065/0075

AUTHOR: Yemin, O. N.; Bykov, N. N.

TITLE: Influence of the thermodynamic properties of the working medium on the selection of optimum gas turbine parameters

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1965, 65-75

TOPIC TAGS: gas turbine, efficiency, load coefficient, guide vane, rotor blade length, turbine parameter, helium, hydrogen, neon

ABSTRACT: The selection of optimum discharge and load coefficients of turbines operating with different working fluids (hydrocarbon combustion products, helium, neon, or hydrogen) was analyzed, and it was concluded that in design of turbines with working media in which the critical sound velocity is increased (helium, hydrogen), it is expedient to select higher values for the discharge and load coefficients. In this case guide vanes should be used behind the last turbine stage to secure a gas discharge in the axial direction. Orig. art. has: [illegible] formulas and 6 figures. [AC]

Card 1/2

L 45042-65

ACCESSION NR: AP5012087

ASSOCIATION: none

SUBMITTED: 30May63 ENCL: 00 SUB CODE: PR

NO REF SOV: 003 OTHER: 000 ATD PRESS: 3255

Card 2/2

L 47170-66 EWT(d)/EWT(l)/EWP(m)/EWT(m)/EWP(w)/EWP(v)/T-2/EWP(k) IJP(c)

ACC NR: AP6032184 JD/WW/EM SOURCE CODE: UR/0096/66/000/010/0052/0056

AUTHOR: Bykov, N. N. (Candidate of technical sciences); Yemin, O. N. (Candidate of technical sciences)

ORG: Moscow Aviation Institute (Moskovskiy aviatsionnyy institut)

69
B

TITLE: Investigation of a swirling gas flow in a convergent nozzle 15 26

SOURCE: Teploenergetika, no. 10, 1966, 52-56

TOPIC TAGS: convergent nozzle, nozzle flow, radial flow turbine, swirling injector, GAS FLOW

ABSTRACT: A theoretical and experimental study has been conducted of a swirling compressible flow in the exit duct of a radial-flow turbine. Similar flows also occur in some axial turbines, centrifugal injectors, and other devices. In the theoretical analysis, the exit duct represented a convergent nozzle in which the swirling flow was produced by injecting air into the nozzle at an angle. Using the energy balance equation and introducing a geometric parameter K, an approximate formula is derived for calculating the flow discharge coefficient as a function of K and the total pressure drop. The experimental part of the investigation consisted of testing several nozzles with exit radii of 70 and 46 mm. Measurements were made of the static and total pressures at the inlet, and of the flow rate. The obtained results show that with an increase in the total pressure drop, the flow rate at first rapidly increases. When the pressure drop exceeds 1.5, the flow rate increases more slowly. The

Card 1/2 UDC: 62.225.282.2.001.5

L 47170-66

ACC NR: AP6032184

theoretical and experimental results were found to be in good agreement. However, a reduction in the nozzle exit radius ($r \leq 36$ mm) results in considerable discrepancy between the theoretical and experimental data. This discrepancy is due to the generation of a supersonic flow at the exit; under this condition, the assumptions used become invalid. Orig. art. has: 18 formulas and 7 figures. [AS]

SUB CODE: 21/ SUBM DATE: none/ ATD PRESS: 5090

Card 2/2 blg

85365

6.8000(3201,1099,1162)

S/046/60/006/004/015/022
B019/B056

AUTHORS: Bykov, N. S., Shneyder, Yu. G.

TITLE: An Experimental Investigation of the Action of Surface Quality Upon the Damping of Surface Waves

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 4, pp. 501 - 503

TEXT: The authors deal with results obtained by an experimental investigation of the effect of the surface quality of a sound conductor and of the working method upon the damping of surface waves. The investigations were carried out on rectangular specimens having a cross section of 40·20 mm and a length of 450 mm. Treatment was carried out by shaping, milling, polishing with abrasive powders and pastes and by means of chemical polishing. Measurements were carried out by the pulsed method. It was found that the manner of treatment has a considerable effect upon sound damping in the sound conductor. The strongest damping coefficient was found in the case of a surface treated by a shaper. In the case of milled surfaces, the machine construction becomes noticeable with the damping coefficient. Also the direction of the treatment with respect to the sound

Card 1/2

86365

An Experimental Investigation of the Action of Surface Quality Upon the Damping of Surface Waves S/046/60/006/004/015/022 B019/B056

ray becomes considerably noticeable. If the direction of treatment is perpendicular to the sound ray, the damping coefficient is greater by 15 - 20%. In chemical polishing, an influence is found to be exerted by the layer being formed on the surface of the specimen as well as by the method of polishing. There are 2 tables and 3 Soviet references.

ASSOCIATION: Leningradskiy institut aviatsionnogo priborostroyeniya (Leningrad Institute of Aviation Instrument Construction)

SUBMITTED: February 15, 1960

Card 2/2

24.1400

S/046/62/008/002/015/016
B104/B108

AUTHORS: Bykov, N. S., Shneyder, Yu. G.

TITLE: The effect of rolling of sound conductor surfaces on the damping of surface waves

PERIODICAL: Akusticheskiy zhurnal, v. 8, no. 2, 1962, 240-241

TEXT: Rectangular sound conductors (300·40·20 mm) of Cт. 45 (45 steel) were rolled smooth by means of a ball. The load on the ball was varied between 15 and 19 kg. The surface finish of the end product was $\nabla 6$, the microhardness $H_n = 273$ kg/mm^2. Damping was measured by an impulse method, emitter and receiver were polystyrol wedges. For different frequencies damping decreased with increasing load on the ball. With higher loads damping increased owing to damage on the surface (Fig.). There is 1 figure.

ASSOCIATION: Leningradskiy institut aviatsionnogo priborostroyeniya (Leningrad Institute of Aviation Instruments)

SUBMITTED: May 24, 1961

Card 1/2

The effect of rolling of sound ...

S/046/62/008/002/015/016
B104/B108

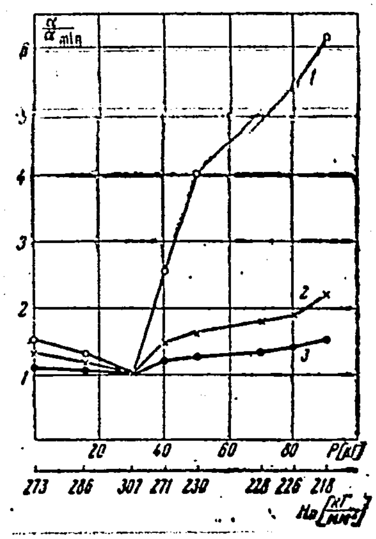

Fig. Damping of different sound frequencies as a function of the load on the ball. Legend: (1) 2.5 Mcps; (2) 5 Mcps; (3) 10 Mcps; (P) load in kilograms; (Hn) microhardness in kg/mm^2.

Card 2/2

BYKOV, N.T. [deceased]

Viability of the plague bacillus in tarbagan pelts during drying.
Izv. Irk.gos.protivochum. inst. 8:133-140 '50. (MIRA 10:12)
(PASTEURELLA PESTIS) (HIDES AND SKINS--DISINFECTION)

BYKOV, N.V., inzhener; VAVILOV, N.I., inzhener.

Using suspended steel scaffolds for concreting bridge span structures.
Avt.dor. 20 no.3:19-20 Mr '57. (MLRA 10:5)
(Bridges, Concrete)
(Scaffolding)

MOLOKANOV, N.M.; BYKOV, N.V.

Sectionless concreting and early striking of arch centers.
Transp. stroi. 12 no.4:25-27 Ap '62. (MIRA 15:5)

1. Zaveduyushchiy kafedroy Stroitel'nogo proizvodstva Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta (for Molokanov).
2. Nachal'nik Mostootryada No.6 Tresta po stroitel'stvu mostov Glavmostostroya Ministerstva transportnogo stroitel'stva SSR (for Bykov).

(Bridges, Arched)

ULANOV, Ye.S.; SKRYABIN, S.A., inzh.; BYKOV, N.V.

Bridge across the Volga at Rybinsk. Transp. stroi. 14 no.1: 17-21 Ja '64. (MIRA 17:8)

1. Glavnyy inzh. proyekta Giprokommundortransa (for Ulanov).

BYKOV, N.Ye.; POSTNIKOV, V.G.

Determining the producing characteristics of oil fields with thinly layered reservoir rocks. Trudy VNII no.23:74-83 '60. (MIRA 13:11)

(Krasnodar Territory--Petroleum geology)

BYKOV, N.Ye.

Materials on the biology of the Baltic herring (Clupea harengus membras (L.)) in the Aral Sea. Sbor. rab. po ikht. i gidrobiol. no.3: 185-196 '61. (MIRA 15:1)

1. Iz Aral'skogo ikhtiologicheskogo otdeleniya Instituta ikhtiologii i rybnogo khozyaystva AN Kazakhskoy SSR.
(Aral Sea--Herring)

BYKOV, N.Ye.

Fecundity of the Aral herring (Clupea harengus membras L.).
Vop. ikht. 2 no.1:100-103 '62. (MIRA 15:3)

1. Aral'skoye otdeleniye Instituta ikhtiologii Akademii nauk Kazakhskoy SSR, Aral'sk.
(ARAL SEA---HERRING)

BYKOV, N.Ye.

Incidental immigration of gobies and atherines into the Aral Sea and their relationship with acclimatized and local fish species. Biul. MOIP. Otd. biol. 69 no.1:51-58 Ja-F '64. (MIRA 17:4)

BYKOV, N.Ye.; KUCHAPINA, M.I.; KAZAKOVA, V.Ye.; BOROVLEVA, T.P.; ALENIN, V.V.; BOKSERMAN, A.A.; ORLOV, V.S.

Delineation of production areas in the fields of the cis-Carpathian region. Nauch.-tekh. sbor. po dob. nefti no.19: 6-12 '63. (MIRA 17:8)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

LUKONINA, N.K.; BYKOV, N.Ye.

Food of young Baltic herring (Clupea harengus membras L.) in the Aral Sea. Vop.ikht. 2 no.4:717-720 '62. (MIRA 16:2)

1. Aral'skoye otdeleniye instituta ikhtiologii i rybnogo khozyaystva AN Kazakhskoy SSR, g. Aral'sk.
(Aral Sea—Hearring) (Fishes—Food)

BYKOV, N.Ye.

Delineating production areas in thin-layered reservoirs in Krasnodar Territory. Trudy VNII no.33:199-208 '61. (MIRA 16:7)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut, Moskva.

(Krasnodar Territory—Petroleum geology)

KRYLOV, A.P.; BORISOV, Yu.P.; BYKOV, N.Ye.; ORLOV, V.S.

Principles for programming the development of multipay oil fields and bringing them into production. Neft. khoz. 43 no.8:1-7 Ag '65. (MIRA 18:12)

BYKOV, O.D.

Apparatus for measuring C14 in the gaseous phase by the use of end-type counters. **Vest LOU 16 no.21:132-135 '61.**
(MIRA 14:11)

(Carbon--Isotopes)
(Radioactivity--Measurement)

BYKOV, O.D.

Analysis of the kinetics of gas exchange of illuminated plants; theory of the problem. Fiziol. rast. 9 no.3:325-333 '62. (MIRA 15:11)

1. Biological Institute of Leningrad State University.
(Plants--Respiration) (Photosynthesis)

BYKOV, O.D.

Analysis of the kinetics of gas exchange in illuminated plants.
Fiziol.rast. 9 no.4:408-414 '62. (MIRA 15:9)

1. Biology Institute of Leningrad State University.
(PLANTS--RESPIRATION) (PLANST, EFFECT OF LIGHT ON)

BYKOV, O.D.

Molecular kinetic model of photosynthesis as a process depending on carbon dioxide concentration. Vest. LGU 17 no.15:66-75 '62.

(MIRA 15:8)

(Photosynthesis)

BYKOV, O.D. (Leningrad)

"The Physical Model of Photosynthesis"

Report presented at the 3rd Conference on the use of Mathematics in Biology, Leningrad University, 23-28 Jan. 1961.
(Primeneniye matematicheskikh Metodov v Biologii. II, Leningrad, 1963 pp. 5-11)

SOLDATENKOV, S.V.; BYKOV, O.D.

Formation and transformation of acids of primary sugar oxidation in plants. Fiziol. rast. 11 no. 3:515-521 '64. (MIRA 17:7)

1. Kafedra fiziologii i biokhimii rasteniy Leningradskogo gosudarstvennogo universiteta imeni A.A. Zhdanova.

BYKOV, O.S.

Case of hemorrhagic capillarotoxicosis (Schoenlein-Henoch disease) following vaccination with NIISI polyvaccine. Pediatriia 37 no.7:86 Jl '59. (MIRA 12:10)
(PURPURA (PATHOLOGY))

BYKOV, P.

BYKOV, P.

Five cubic meter bucket excavators should be used in the pits. Mast.ugl.4 no.8:6 Ag'55. (MLRA 8:10)

1. Mashinist ekskavatora Korkinskogo razreza no.2 na Urale (Ural Mountain region--Excavating machinery)

ZAMECHNIK, F.F.; BYKOV, P.A.

Core composition with a low crude strength. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.12:9-11 D '64. (MIRA 18:3)

BYKOV, Pavel Borisovich

"Our Contribution to the Five-Year Plan," (Nash vklad v pyatiletku), Moscow, 1947

Bol'shaya Sovetskaya Entsiklopediya, Vol. VI, 2nd ed., Moscow, 1949

BYKOV, Pavel Borisovich

"My High-Speed Work Methods," Proizvodstvennoye obucheniye (Production Training,) 1949, No. 7.

Bol'shaya Sovetskaya Entsiklopediya, Vol. VI, 2nd ed., Moscow, 1949

1. BYKOV, P. B.

2. USSR (600)

4. Metal Cutting

7. Using the work practice of stakhanovite speed operators in setting up standards for metal cutting processes. Izv AN SSSR Otd tekh nauk No 11 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

BYKOV, Pavel Borisovich, tokar', deputat Verkhovnogo Soveta SSSR; GUROV, S., redaktor; LIL'YE, A., tekhnicheskiy redaktor

[A frank conversation] Otkrovennyi razgovor. [Moskva] Moskovskii rabochii, 1956. 118 p. (MIRA 9:11)
(Efficiency, Industrial)

BYKOV, P.B.; KHANKIN, L.D.; MAKEYEV, G.M., inzhener, retsenzent; GEL'MAN, V.G., inzhener, redaktor; POPOLOV, Ya.N., inzhener, redaktor izdatel'stva; TIKHONOV, A.Ya., tekhnicheskiy redaktor

[Reducing setup, man and down-time in lathe work] Sokrashchenie vspomogatel'nogo vremeni pri rabote na tokarnykh stankakh. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 166 p. (Turning) (MIRA 9:12)

BYKOV, ~~Pavel Borisovich~~, tokar'-novator; MAGAZANNIK, D.N., redaktor; ISLANKINA, T.F., redaktor izdatel'stva; FURMAN, G.V., tekhnicheskiy redaktor

[The achievements of innovator turners] Dostizheniia tokarei-novatorov. Moskva, Izd-vo "Znanie," 1956. 39 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser. 4, no.36)
(Turning) (MIRA 10:2)

GRANOVSKIY, G.I., prof., doktor tekhn.nauk; BUSHUYEV, S.M., tokar'-skorostnik; CHUDINOV, ; BYKOV, P.B., tokar', deputat Verkhovnogo Soveta SSSR; YEMEL'YANOV, L.V.

Publishing the first issue of "Mashinostroitel' ". Mashinostroitel' no.1:44 N '56. (MIRA 12:1)

1. Avtozavod im. Likhacheva (for Bushuyev). 2. Glavnyy inzhener Vsesoyuznogo proyektno-tekhnologicheskogo instituta (for Yemel'yanov).

(Journalism, Technical)

BYKOV, P.B., tokar'; KHANKIN, D.D., inzh.

Increasing industrial production. Mashinostroitel no.2/3:21-26 N-D '56. (MIRA 12:1)

(Turning)

PAVLOVSKIY, Ye.N, akademik, SPERANSKIY, G.N., geroy Sotsialisticheskogo Truda, BYKOV, P.B., tokar', deputat Verkhovnogo Soveta SSSR., BORIN, K.A. kand.sel'skokhozyaystvennykh nauk, geroy Sotsialisticheskogo Truda laureat Stalinskoy premii., PASHENNAYA, V.N., narodnaya artistka SSSR., KHOTSYANOV, L.K., ANAN'YEV, M.G., kand.med.nauk

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BOOK

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Author: BYKOV, P.G., Engineer-Colonel

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